ABSTRACT OF THE DISCLOSURE

A method for identifying artifacts occurring during a measurement of the concentration of an analyte in a biological sample by means of an apparatus that employs temperature-controlled optical probes, introduces electromagnetic radiation into tissue, and collects and detects radiation emitted at a distance from the point at which the electromagnetic radiation is introduced. The values of intensity of radiation emitted at different wavelengths, at different distances between the light introduction site(s) and the light collection site(s), and at different temperatures are collected and used in the method to generate a relationship between these values and the concentration of an analyte in the tissue or the disease state of a patient. The method involves the use of an algorithm that identifies artifacts in the data resulting from motion of the patient and allows the rejection of data sets that contain these artifacts. The algorithm identifies sudden changes in the magnitude and direction in a sequence of collected signals.